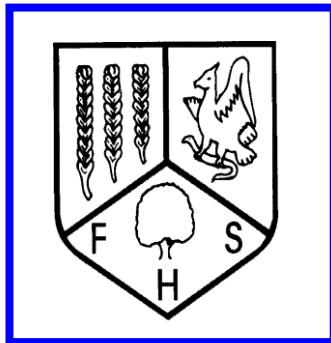


Featherstone High School



Mathematics Department

Core 2 Scheme of Work

One Lesson is considered as 1.5 hours.

Homework should be set **every lesson** – exam questions should be selected from the Review Exercises. Students complete on lined paper (questions with * students should be provided with resources) and self-marked before handing in.

| Unit | Lessons |
|--|----------|
| 1 Algebra and Functions | 3 |
| 3 Exponentials and Logarithms | 3 |
| 5 The Binomial Expansion | 1 |
| 7 Geometric Sequences and Series | 3 |
| 2 The Sine and Cosine Rule | N/A |
| Assessment | 1 |
| 4 Coordinate Geometry in the (x,y) plane | 2 |
| 6 Radian Measure and its Applications | 3 |
| 8 Graphs of Trigonometric Functions | 3 |
| 10 Trigonometrical Identities and Simple Equations | 3 |
| | |
| (Easter) | |
| 9 Differentiation | 2 |
| 11 Integration | 1 |
| Assessment | 1 |
| Revision | 3 |
| (Summer) | |

1 Algebra and Functions

| | | | |
|---------------------------|---|--|--|
| <p>Spring Term</p> | <p><u>Previously...</u></p> <ul style="list-style-type: none">• Simplify algebraic fractions by cancelling terms• Adding, Subtracting, Multiplying and Dividing Fractions• Factorising quadratic equations• Expanding brackets | | |
| | <ul style="list-style-type: none">• Simplifying algebraic fractions by division• Dividing a polynomial by $(x \pm p)$• Factorising a polynomial by using the Factor theorem• Using the Remainder theorem | | |
| | <p><u>Next...</u></p> <ul style="list-style-type: none">• N/A | | |
| | <p>CORE 2 BOOK</p> <p>Core 2 Book</p> <ul style="list-style-type: none">• Ex: 1B, Q1, 2, 3 (odd parts)• Ex: 1C, odd questions• Ex: 1D, odd questions• Ex: 1E, odd questions | <p>Homework</p> <p>Ex: 1F, Q1 – 5</p> <p>Ex: 1F, Q7, 9, 11, 13, 15</p> | <p>Examiner Report</p> |
| | <p>KEYWORDS</p> <ul style="list-style-type: none">• | | <p>http://www.edexcel.com/quals/gce/gce08/math/Pages/default.aspx</p> |
| | <p>FHS SKILLS/WRL</p> <ul style="list-style-type: none">• Use of memory (use of maths facts), be logical (do things step by step), plan (solving multi stage problems) | | |

3 Exponentials and Logarithms

| Spring Term | <p><u>Previously...</u></p> <ul style="list-style-type: none">• <p>• Know the shape of the graph $y=a^x$</p> <p>• Write an expression in log form</p> <p>• Use the laws of logs</p> <p>• Solve eqns of the form $a^x = b$</p> <p>• Change the base of a logarithm</p> | <p><u>Next...</u></p> <ul style="list-style-type: none">• The above will be used whilst studying Geometric Sequences and Series (ch7). There are many practical uses of $a^x = b$• Core 3 – Chapter 3 | Core 2 Book | Homework | Examiner's Report | Teaching Resources |
|-------------|--|---|-------------|--|---|--------------------|
| | <p>Core 2 Book</p> <ul style="list-style-type: none">• Ex: 3B - LHS• Ex: 3D, Q1, 2, 3 (odd parts)• Ex: 3E, Q1&2 ONLY• Ex: 3F Q1, 2, 3 | <ul style="list-style-type: none">• Ex: 3C• Ex: 3G – Odd questions | | | <ul style="list-style-type: none">• P:\Departments\Maths\A Level\SOW and Resources ALL MODULES\C2 SOW and Resources\Resources\Resources | |
| | <p>KEYWORDS</p> <ul style="list-style-type: none">• | | | <p>http://www.edexcel.com/quals/gce/gcse08/math/Pages/default.aspx</p> | | |
| | <p>FHS SKILLS/WRL</p> <p>Be creative (using keywords), use of memory (maths facts), be logical (step by step thinking)</p> | | | | | |

5 The Binomial Expansion

| | | | | |
|-------------|--|---|--|--|
| Spring Term | <p><u>Previously...</u></p> <ul style="list-style-type: none">• Expanding Brackets• Use Pascal's triangle to expand brackets of the form $(a+b)^n$• Use combination and factorial notation to expand expressions of the form $(a+b)^n$• Use the expansion of $(1+x)^n$ to expand $(a+b)^n$ <p><u>Next...</u></p> <ul style="list-style-type: none">• This will be revisited in C4 when you come to expanding expressions when n is not a positive integer | | | |
| | <p>Mymaths</p> <p>Mymaths</p> <ul style="list-style-type: none">• http://www.mymaths.co.uk/tasks/library/alevel/lib/loadLesson.asp?title=alevel/core2/Sequences/sequences4Binomial&taskID=2041 | <p>Homework</p> <p>http://www.mymaths.co.uk/tasks/library/alevel/lib/loadLesson.asp?title=alevel/core2/Sequences/sequences4Binomial&taskID=2041</p> | <p>Examiners Report</p> <ul style="list-style-type: none">• http://www.edexcel.com/quals/gce/gce08/math/Pages/default.aspx | <p>Teaching Resources</p> <ul style="list-style-type: none">• P:\Departments\Maths\A Level\SOW and Resources ALL MODULES\C2 SOW and Resources\Resources |
| | <p>KEYWORDS</p> | | | |
| | <p>FHS SKILLS/WRL</p> | | | |

7 Geometric Sequences and Series

| | | | |
|-------------|---|---|--|
| Spring Term | <p><u>Previously...</u></p> <ul style="list-style-type: none">• Arithmetic Sequences (from Core1)• Exponentials and Logarithms (Chapter 3) <hr/> <ul style="list-style-type: none">• Recognise a geometric sequence and state its common ratio• Calculate the nth term of a geometric sequence• Find the sum of a geometric series• Solve problems involving growth and decay• Find the sum to infinity of a convergent geometric series <hr/> | <p><u>Next...</u></p> <ul style="list-style-type: none">• N/A | |
| | <p>Core 2 Book</p> <p>Core 2 Book</p> <ul style="list-style-type: none">• Ex: 7B, Q1 a&c, then Q2 – 5• Ex: 7D, Q1 LHS then remaining Odd Questions• Ex: 7E, Q1 LHS then remaining Odd Questions • Ex: 7C, Odd questions• Ex: 7D, Q3, 5, 7, 9 | <p>Homework</p> <ul style="list-style-type: none">• Ex: 7F, Q5, 7, 9, 11, 13, 15 | <p>Examiners Report</p> <ul style="list-style-type: none">• http://www.edexcel.com/quals/gce/gce08/math/Pages/default.aspx |
| | <p>KEYWORDS</p> | | |
| | <p>FHS SKILLS/WRL</p> <p>Organise information (sequence), be logical (look for patterns and use them), research and explore and be creative (sequences in nature)</p> | | <ul style="list-style-type: none">• P:\Departments\Maths\A Level\SOW and Resources ALL MODULES\C2 SOW and Resources\Resources |

2 The Sine and Cosine Rule

| <i>Spring Term</i> | Activities |
|--------------------|---|
| | <p>Students complete this Chapter on their own and prior to Chapter 4 (Coordinate Geometry)</p> |

Assessment

| <i>Spring Term</i> | Topics Covered |
|--------------------|--------------------------------|
| | <p>Chapters 1, 3, 5, 7, 2.</p> |

4 Coordinate Geometry in the (x,y) plane

Spring Term

| | <p><u>Previously....(from GCSE and Core1)</u></p> <ul style="list-style-type: none"> • Equations of straight lines and all it's different forms • Finding the gradients of equations of straight lines • The conditions for two straight lines to be parallel or perpendicular • Parts of a circle (from GCSE) • Some knowledge of circle theorems (from GCSE) <hr/> <ul style="list-style-type: none"> • Find the midpoint of a line • Find the distance between a pair of points • Know how to find the equation of a circle • Use the properties of a circle to solve geometric problems <p><u>Next...</u></p> <ul style="list-style-type: none"> • N/A | | |
|---|--|---|---|
| Core 2 Book | Homework | Examiners Report | Teaching Resources |
| Core 2 Book <ul style="list-style-type: none"> • Ex: 4A, Q1 (LHS) then remaining Odd Questions • Ex: 4B, Odd Questions • Ex: 4C, Q1 (LHS) then remaining Odd Questions • Ex: 4D, Q1-4 (odd parts), then remaining Odd Questions • Ex: 4E, Odd questions | <ul style="list-style-type: none"> • Make summary cards | <ul style="list-style-type: none"> • http://www.edexcel.com/quals/gce/gce08/math/Pages/default.aspx | <ul style="list-style-type: none"> • P:\Departments\Maths\A Level\SOW and Resources ALL MODULES\ C2 SOW and Resources\Resou rces |
| <u>KEYWORDS</u> | | | |
| <u>FHS SKILLS/WRL</u> | | | |

6 Radian Measure and its Applications

| | | | | |
|---------------------------|--|---|---|---|
| <p>Spring Term</p> | <p><u>Previously...</u></p> <ul style="list-style-type: none"> • N/A <p><u>Convert between radians and degrees and vice versa</u></p> <p><u>Know and use the formula in radians for the length of an arc and area of a sector</u></p> <p><u>Know and use the formula in radians for the segment of a circle</u></p> | | | |
| | <p><u>Next...</u></p> <ul style="list-style-type: none"> • Radians are a very important way of measuring angles in A-Level Maths and will be met every time in trigonometry chapters, e.g. Chapter 8 | | | |
| | <p>Core 2 Book and Mymaths</p> <p>Core 2 Book</p> <ul style="list-style-type: none"> • Ex: 6A, Q1–5 (odd parts) <p>Mymaths</p> <p>http://www.mymaths.co.uk/tasks/library/alevel/lib/loadLesson.asp?title=alevel/core2/trigNew/TrigNew1Radians&taskID=2050 – Page 4 onwards</p> | <p>Homework</p> <p>http://www.mymaths.co.uk/tasks/library/alevel/lib/loadTask.asp?title=alevel/core2/trigNew/TrigNew1RadiansOH&taskID=2050</p> | <p>Examiners Report</p> <p>http://www.edexcel.com/quals/gce/gce08/math/Pages/default.aspx</p> | <p>Teaching Resources</p> <ul style="list-style-type: none"> • P:\Departments\Maths\A Level\SOW and Resources ALL MODULES\C2 SOW and Resources\Resoures |
| | <p>KEYWORDS</p> <ul style="list-style-type: none"> • | | | |
| | <p>FHS SKILLS/WRL</p> <ul style="list-style-type: none"> • Use of memory (maths facts), plan and be logical (solving multistep problems) | | | |

8 Graphs of Trigonometric Functions

| | | | |
|---|--|--|---|
| <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Spring Term</p> | <p><u>Previously...</u></p> <ul style="list-style-type: none">• Chapter 6 (angles in radians)• Calculate the sine, cosine and tangent of any angle• Know the exact trigonometrical ratios for 30°, 45° and 60°• Sketch the graphs of the sine, cosine and tangent functions• Sketch simple transformations of these graphs | <p><u>Next...</u></p> <ul style="list-style-type: none">• Chapter 10, solving trig equations | |
| | <p>CORE 2 BOOK</p> <p>Core 2 Book</p> <ul style="list-style-type: none">• Ex: 8C, Q1&2• Ex: 8F, Q1 – 5 (odd parts), Q6• Ex: 8D | <p>Homework</p> <ul style="list-style-type: none">• Ex: 8G, Q1-3 (odd parts, Q5 & 8 | <p>Examiners Report</p> <p>http://www.edexcel.com/quals/gce/gcse08/math/Pages/default.aspx</p> |
| | <p>KEYWORDS</p> <ul style="list-style-type: none">•  | | <ul style="list-style-type: none">• P:\Departments\Maths\A Level\SOW and Resources ALL MODULES\ C2 SOW and Resources\Resources |
| | <p>FHS SKILLS/WRL</p> <ul style="list-style-type: none">•  | | |
| | | | |

10 Trigonometrical Identities and Simple Equations

| <p>Spring Term</p> | <p><u>Previously...</u></p> <ul style="list-style-type: none"> • Chapter 8, solving trig equations | | | | | | | | | | | | | | | | | |
|--|---|---|---|------------------|--------------------|--|---|---|---|--|--|--|--|--|--|--|--|--|
| | <ul style="list-style-type: none"> • Know and use the relationships $\tan \theta \equiv \frac{\sin \theta}{\cos \theta}$, $\sin^2 \theta + \cos^2 \theta = 1$ • Solve simple trigonometrical equations of the form $\sin(\theta) = k$ • Solve more complex trigonometrical equations of the form $\sin(n\theta + \alpha) = k$ | | | | | | | | | | | | | | | | | |
| | <p><u>Next...</u></p> <ul style="list-style-type: none"> • N/A | | | | | | | | | | | | | | | | | |
| | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #800080; color: white;">Core 2 Book</th> <th style="background-color: #800080; color: white;">Homework</th> <th style="background-color: #800080; color: white;">Examiners Report</th> <th style="background-color: #800080; color: white;">Teaching Resources</th> </tr> </thead> <tbody> <tr> <td> Core 2 book <ul style="list-style-type: none"> • Ex: 10B, Q1, 2, 3 (a, c, e) • Ex: 10C, Q1, 2, 3 (LHS) • Ex: 10D, Q1, 2, 3 (odd parts) </td><td> <ul style="list-style-type: none"> • Ex: 10E, Q3, 12, 14, 19, 20 • Ex: 10E, Q11, 13, 15, 17 </td><td> http://www.edexcel.com/quals/gce/gce08/mathspages/default.aspx </td><td> <ul style="list-style-type: none"> • P:\Departments\Maths\A Level\SOW and Resources ALL MODULES\ C2 SOW and Resources\Resou rces </td></tr> <tr> <td> KEYWORDS <ul style="list-style-type: none"> • </td><td></td><td></td><td></td></tr> <tr> <td> FHS SKILLS/WRL <ul style="list-style-type: none"> • </td><td></td><td></td><td></td></tr> </tbody> </table> | Core 2 Book | Homework | Examiners Report | Teaching Resources | Core 2 book <ul style="list-style-type: none"> • Ex: 10B, Q1, 2, 3 (a, c, e) • Ex: 10C, Q1, 2, 3 (LHS) • Ex: 10D, Q1, 2, 3 (odd parts) | <ul style="list-style-type: none"> • Ex: 10E, Q3, 12, 14, 19, 20 • Ex: 10E, Q11, 13, 15, 17 | http://www.edexcel.com/quals/gce/gce08/mathspages/default.aspx | <ul style="list-style-type: none"> • P:\Departments\Maths\A Level\SOW and Resources ALL MODULES\ C2 SOW and Resources\Resou rces | KEYWORDS <ul style="list-style-type: none"> • | | | | FHS SKILLS/WRL <ul style="list-style-type: none"> • | | | | |
| Core 2 Book | Homework | Examiners Report | Teaching Resources | | | | | | | | | | | | | | | |
| Core 2 book <ul style="list-style-type: none"> • Ex: 10B, Q1, 2, 3 (a, c, e) • Ex: 10C, Q1, 2, 3 (LHS) • Ex: 10D, Q1, 2, 3 (odd parts) | <ul style="list-style-type: none"> • Ex: 10E, Q3, 12, 14, 19, 20 • Ex: 10E, Q11, 13, 15, 17 | http://www.edexcel.com/quals/gce/gce08/mathspages/default.aspx | <ul style="list-style-type: none"> • P:\Departments\Maths\A Level\SOW and Resources ALL MODULES\ C2 SOW and Resources\Resou rces | | | | | | | | | | | | | | | |
| KEYWORDS <ul style="list-style-type: none"> • | | | | | | | | | | | | | | | | | | |
| FHS SKILLS/WRL <ul style="list-style-type: none"> • | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

9 Differentiation

| | | | |
|-------------|---|--|---|
| Summer Term | <p><u>Previously...</u></p> <ul style="list-style-type: none">Core 1 – Chapter 7Know the difference between an increasing and decreasing functionKnow how to find a stationary pointKnow how to distinguish between a maximum, a minimum and a point of inflexionApply your knowledge of turning points to solve problems | <p><u>Next...</u></p> <ul style="list-style-type: none">Core 3 – Chapter 8 | |
| | <p>Core 2 Book</p> <p>Core 2 book</p> <ul style="list-style-type: none">Ex: 9A, Q1&2 (LHS)Ex: 9B, Q1- 4 (a&c), Q5, 6.Ex: 9C | <p>Homework</p> <ul style="list-style-type: none">Ex: 9D, odd questions | <p>Examiners Report</p> <p>http://www.edexcel.com/quals/gce/gce08/math/Pages/default.aspx</p> |
| | <p>KEYWORDS</p> | | P:\Departments\Maths\A Level\SOW and Resources ALL MODULES\C2 SOW and Resources\Resources |

11 Integration

| | | | | |
|-------------|---|---|---|---|
| Summer Term | <p><u>Previously...</u></p> <ul style="list-style-type: none">• Core 1 – Chapter 8• Integrate simple functions within defined limits• Use integration to find areas under curves• Use integration to find the area between a curve and a line• Approximate the area under a curve by using the trapezium rule <p><u>Next...</u></p> <ul style="list-style-type: none">• Core 4 – Chapter 6 | | | |
| | <p>CORE 2 BOOK and Mymaths</p> <p>Core 2 Book</p> <ul style="list-style-type: none">• Ex: 11C, Q1, 3, 5• Ex: 11D, Odd Questions <p>Mymaths</p> <p>http://www.mymaths.co.uk/tasks/library/alevel/lib/loadLesson.asp?title=alevel/core2/Integration/integration7Topic&taskID=2060</p> | <p>Homework</p> <p>http://www.mymaths.co.uk/tasks/library/alevel/lib/loadTask.asp?title=alevel/core2/Integration/integrationOW&taskID=3009</p> | <p>Examiners Report</p> <p>http://www.edexcel.com/quals/gce/gce08/math/Pages/default.aspx</p> | <p>Teaching Resources</p> <p>P:\Departments\Maths\A Level\SOW and Resources ALL MODULES\C2 SOW and Resources\Resources</p> |
| | <p>KEYWORDS</p> | | | |
| | <p>FHS SKILLS/WRL</p> | | | |
| | | | | |

Assessment

| | |
|-------------|--|
| Spring Term | <p>Topics Covered</p> <p>Mock Exam Paper – All Topics Included!</p> |
| | |

